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**TRANSMITTAL  
FORM**

(for all correspondence after initial filing)

Attorney Docket No. <b>MBA-101</b>	Total Pages
Application Number <b>09/847,513</b>	
Filing Date <b>5/1/2001</b>	
First Named Inventor <b>EDWARD F. DELONG</b>	
Group Art Unit <b>1645</b>	
Examiner <b>NOT ASSIGNED</b>	

**ENCLOSURES (check all that apply)**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503)                              | <input type="checkbox"/> Response to Notice of Missing Parts         |
| <input type="checkbox"/> Fee Transmittal Form   | <input type="checkbox"/> Small Entity Statement                      |
| <input type="checkbox"/> Fee Attached   | <input type="checkbox"/> Declaration by Inventors                    |
| <input checked="" type="checkbox"/> Response/Amendment  | <input type="checkbox"/> Assignment papers                           |
| <input checked="" type="checkbox"/> Reply under 37 CFR 1.111 with mark up version and clean version | <input type="checkbox"/> Power of Attorney by Assignee               |
| <input checked="" type="checkbox"/> Statement to computer disk and sequence listing                 | <input type="checkbox"/> IDS/PTO-1449                                |
| <input checked="" type="checkbox"/> Corrected sequence listing Total Sheets: [ 235 ]                | <input type="checkbox"/> with copies of cited references             |
| <input checked="" type="checkbox"/> Disk of corrected sequence listing                              | <input type="checkbox"/> New Power of Attorney and Revocation of Old |
| <input type="checkbox"/> Extension of Time Request  | <input type="checkbox"/> Change of Correspondence Address            |
| <input type="checkbox"/> Express Abandonment Request  | <input type="checkbox"/> Other:                                      |

**SIGNATURE OF AGENT**

NAME	<b>MAREK ALBOSZTA, REG. NO. 39,894</b>
Signature	<i>Marek Alboszt</i>
Date	<i>6 Aug. 2001</i>

**Certificate of Mailing by "Regular Mail"**

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IN THE US PATENT AND TRADEMARK OFFICE

09847513-080801

In re Application of:

Edward F. DeLong et al.

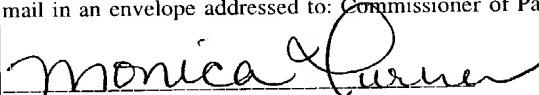
Serial No: 09/847,513

Filed: May 1, 2001

For: Light-Driven Energy Generation Using Proteorhodopsin

Group: 1645

Examiner: Not assigned yet

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, DC 20231, on	
	<u>8/16/01</u>
Signature	date of deposit
<u>Monica Turner</u>	
Name of Person Signing	

**REPLY UNDER 37 CFR 1.111**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

In reply to the "Notice to File Corrected Application Papers" dated June 8<sup>th</sup>, 2001, please correct the above-identified application as follows:

**Correction:**

1. Delete on page 52 the section "Deposits" so that page 52 results in having the Abstract on a separate page. Add the section "Deposits" as a new page on page 63.

2. Add the corrected sequence listing, which is provided in written and computer readable format.

#### CLEAN FORM

The clean version of pages 52 and 63 are included.

Corrected Sequence listing in written form is provided (235 pages).

Computer readable form copy of the corrected sequence listing is provided on the enclosed computer disk.

#### MARKED-UP VERSION

The mark-up version page 52 is included.

Copy of the markup sequence listing as per USPTO letter dated 6/8/01 is provided for reference.

#### REMARKS:

The section "Deposits" has been deleted from page 52 to comply with the requirement that the Abstract is on a separate page. The section "Deposits" is added on page 63.

Regarding the sequence listing, fields <140> and < 141> are filled out.

Regarding sequence listing 1, field <221> is filled out.

The sequence listing has been checked with Checker version 3.0 to comply with the requirements of 37 CFR 1.822 and/or 1.823.

This reply encompasses a bona fide attempt to overcome the informal status of the application by which no new matter has been added and a statement is provided on the

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## ABSTRACT OF THE DISCLOSURE

A light-driven energy generation system using proteorhodopsin is provided. Proteorhodopsin sequences were retrieved and amplified from naturally occurring members of the domain Bacteria using proteorhodopsin-specific polymerase chain reaction primers. Proteorhodopsin sequences were placed in expression vectors for production of proteorhodopsin proteins in a host, for instance, *E. coli* and other bacteria. The system also includes a light source and a source of retinal, that allows the system to convert light into biochemical energy. The generated biochemical energy could be mediated into electrical energy by a mediator.

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## [DEPOSITS]

[Depository address: 10801 University Boulevard, Manassas, VA 20110.

The *Escherichia coli* containing cloned DNA BAC 31A8 having assigned ATCC number PTA-3083, the *Escherichia coli* containing cloned DNA BAC 40E8 having assigned ATCC number PTA-3082, the *Escherichia coli* containing cloned DNA BAC 41B4 having assigned ATCC number PTA-3080, and the *Escherichia coli* containing cloned DNA BAC 64A5 having assigned ATCC number PTA-3081, all having been deposited on February 21, 2001 with the ATCC Patent Depository.]

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[The *Escherichia coli* containing a plasmid PAL E6 having assigned ATCC number PTA-3250, the *Escherichia coli* containing a plasmid HOT 0m1 having assigned ATCC number PTA-3251, the *Escherichia coli* containing a plasmid HOT 75m4 having assigned ATCC number PTA-3252, and the *Escherichia coli* containing cloned DNA BAC64A5 having assigned ATCC number PTA 3082, all having been deposited on March 30, 2001 with the

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ATCC Patent Depository.]